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X.—*The Principle of Economy as a Phonetic Force.*

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From the very beginning, early in this century, of the scientific study of Indo-European language, the history of the phonetic form of words has taken a leading place as subject of investigation. And from the beginning, also, has been recognized as a principal factor in that history, a tendency to economy, to the saving of effort, in the work of articulate utterance. It might not be easy to tell precisely how and by whom the recognition was first made, and by what steps it arrived at distinct formulation. Perhaps its inception lay, as much as anywhere, in Bopp's demonstration of *i* and *u* as "lighter" vowels than *a*. As a matter of scientific history, the question is not without interest; but I do not propose to enter into it at the present time. Enough for our purpose that the law of economy, as we may call it, has established itself in current linguistic science as the one most unmistakably exhibited, and most widely and variously active, in the transformations of the external form of speech: some, indeed, are prepared already to pronounce it the only existing or possible one. Among these are (as is natural) included not a few of those whose way it is to make easy and confident solutions of difficult questions. Like every other popular dogma, this has its unintelligent partisans and defenders. It would not be hard to cite striking examples of scholars whose application of the law is purely mechanical—who, for example, deduce empirically the prevailing order of succession of sounds in phonetic growth, and then cast about for reasons why the later sound may be declared easier than the earlier; or who endeavor to account for intricate and puzzling phenomena, like the Germanic rotation of mutes, by an arbitrary and baseless classification of the mutes in respect to intrinsic difficulty of utterance. There is hardly a possible abuse of the principle which has not been exemplified in recent discus-

sions of language. And then, by a natural reaction, there have been and are those who deny not only the exclusive domination of the law, its power as a universal solvent of phonetic difficulties, but also its predominant importance, if not its very existence. Perhaps, therefore, a brief discussion of some of the matters involved may be found not untimely or undesirable.

It is evident enough, we may remark at the outset, that those who carry their skepticism so far as to refuse to the principle of economy at least a first-rate place in the external history of speech, display an unreasonableness not excelled by that of the most unenlightened partisan of the principle. Its existence and effects lie upon the very surface of the best understood facts of language. Nothing else is needed, or can be devised, to account for the whole body of phonetic changes falling under the two heads of abbreviation and assimilation. And—especially if we give the latter its full extension, as will be pointed out farther on—this includes the great mass of phonetic changes: those that remain are, whatever their importance and interest, the comparatively rare exceptions.

As much as this, too, may be inferred on appealing to what we know of the processes of the transmission, acquisition, and use of speech. These are matters now sufficiently understood to make them a fair test of the admissibility and adequacy of any general principle claimed to exercise a wide influence in linguistic history.

At present, and as far back in the life of language as our historical researches carry us, every living tongue has been kept in existence by a process of learning, of apprehending and reproducing what was already in currency. The child—and, in his own way and measure, the adult also—hears words and phrases which have come into use he knows not how, and which are brought to his sensorium by a physical agency totally obscure to him; and, when he understands their meaning well enough to use them himself, he reproduces them, as well as he is able, by a physical apparatus which operates, it is true, under the direction of his will, but of whose construction and mode of working he as a child knows nothing, and as

an adult very little more. By experience, the possessor and manager of this apparatus acquires great dexterity in the execution of familiar movements; any combination of sounds accordant with those to which he is accustomed he becomes able to imitate with wonderful exactness. But he labors under two disabilities, of which one diminishes and the other increases with his growing age. Until experience has given dexterity, much in utterance is found difficult; the young learner bungles his first speech-imitations terribly, even to the extent of being wholly unintelligible, except to those who know him best. Some sounds are harder to catch and reproduce than others; and it would be practicable, and highly interesting, to determine by a wide observation and deduction what is the general scale of difficulty of acquisition among alphabetic elements. A certain degree of difference would be found between individuals: whether also between communities or races is a much more difficult question: I know of no facts which should lead us to expect to find it of appreciable amount. In general, certainly, it would be found that the sounds, and even the combinations, of all the various languages would be learned with practically equal ease, on an average, by speakers of any and every kindred. It is even more in the combinations than in the individual sounds that the difficulty of reproduction lies—in the quick and nice transition from one articulating position of the organs to another. The child, like the adult learner of a new language, is “thick-tongued” at first, and, even when he can speak correctly, cannot speak rapidly.

And then, the perfection of his conquest of this difficulty ushers in the other. He has begun with being equally awkward, and equally able to overcome his awkwardness, in dealing with the phonetic structure of any language; but when he has schooled his organs to the adjustments and changes required by one system of sounds and combinations, he is less able to adapt them to those required by another; and this new disability, the positive result of habit, grows with every added year of practice, until, after arriving at a certain (not exactly definable) age, one is utterly unable to

acquire otherwise than rudely the pronunciation of a strange language.

Thus the attitude of every speaker toward the language which he uses is simply this: he hears, by means which he does not comprehend, signs whose reason is a mystery to him, and, by an apparatus of unknown character in his own throat and mouth, reproduces those signs, at first imperfectly, but later with exactness. Of the *rationale* of the whole process he is both ignorant and careless; to him the practical result is alone of importance. What he knows and realizes is that by such a process of action he makes himself understood by others, even as he understands them; of the advantage which his own mental acts derive from the possession of this instrumentality he is, for the most part, wholly unconscious.

The question is, now, how there should ever come about any change in the uttered form of the signs thus learned and reproduced.

And I think it must be sufficiently clear, in the first place, that to ascribe to sounds themselves an action of change, or a tendency to variation, in any other than a figurative sense, or for brevity (as when we say that the sun rises), is wholly destitute of reason; it is a retrogression from the scientific method to the mythological. Sounds are the audible results of the acts of human beings, and of acts which have no instinctive character (though, like everything else made habitual, they may come to be performed with absence of reflection), but are made by volition, in imitation of the similar acts of others. They can suffer no alteration which has not its ground in the action of the human will. And such action is always determined by motives—motives, often, which are not present to the consciousness of the actor, but which may nevertheless be brought to light and demonstrated. What we have to seek, therefore, is the motive or the variety of motives underlying the acts of men in the phonetic changes of speech. There is no question here of a difference of human capacities, making one individual unable to reproduce with accuracy the sounds made by another. Apart from rare individual peculiarities, of habit oftener than of constitution, of which the effect is

completely lost in the accordant action of the community, the form of every word as at present used is capable of being perfectly learned and reproduced, and that from generation to generation; there is in the nature of things no necessity that it should ever change; and it never will change if there be not some inducement to its alteration, of a kind that is calculated to affect human action, being either identical or akin with motives that are found operative also in other departments of human action.

It does not need to be pointed out how entirely different all this would be, provided our sounds and their combinations were inherently significant; provided we made them as they are because our mental and physical constitutions are so correlated that certain particular movements of the mind lead naturally to certain particular movements of the organs of speech. Then, of course, changes of significance would be the motives that led to changes of form, and the latter would be the record in which we should study the former. It may be added that, as each person's conceptions are somewhat unlike those of every other, and are all the time changing with his changing knowledge and character, there could neither be unity of speech in a community nor persistency in an individual; the diversities and fluctuations of every language would be illimitable.

As things actually are, it is hard to see what motives can be brought to bear upon the outward framework of language save such as are connected, in one way or another, with increased convenience of use—all of which may be conveniently and fairly summed up in the one word "economy." All changes, indeed, both internal and external, are for the purpose of increased convenience of use; it is not, however, the part of phonetic change to provide new material for the expression of thought; but only to take what is provided in other ways and work it over into more manageable shape. Changes of form are not entirely unproductive of new material—as when phonetic variants of the same word are turned to account by being made to fill different offices: but such things are not only exceptional, they are also inorganic, unin-

tended; they are happy accidents. The almost exclusive direction of movement in phonetic history is toward' demolition and decay. Words which had been made up of separate elements first lose their etymologic distinctness, then are fused together, and even shrink into fragments of their former selves. Signs of modification and relation, made in the first place by phonetic change out of independent words, are worn out and drop off again. And what is true of words is also true of the elements which compose them. Mutual adaptation of sound to sound, with rejection of what will not adapt, is the prevailing law. By processes which are completely explainable as results of the tendency to economy, whole classes of sounds are lost from a language or are converted into others.

Just how widely this tendency works, what are the limits to its action, where the line is to be drawn between its effects and those of any other tendency or tendencies, or whether there are such other tendencies, no one has the right to claim to decide at present. That there are phenomena in phonetic history which have not yet been traced to the economic force, and which seem to offer little prospect of ever being so traced, is true enough. But this is by no means equivalent to saying that they never can or will be brought under it. While they resist, they forbid us to maintain with confidence—still more, with dogmatism—that convenience of use, in the form of economy of effort, is the demonstrated sole force at work, and suggest that other minor tendencies may be brought to light; but it will be quite time enough to accept those others when they shall be clearly made out.

The objections hitherto raised, in appearance, against the principle of economy itself have really only lain against the misunderstandings and abuses of that principle—which are common and conspicuous enough. Let us look to see some of the things involved in it.

In the first place—as a matter so much of course that it hardly needs to be pointed out—we have to avoid carefully any views which should imply a conscious and intended economic action on the part of the users of a language. No

speaker or set of speakers says: "This word is too long, let us shorten it; this combination is too hard, let us ease it." Such action is totally opposed to all that we know of the past history and the present use of speech. What we need in order to explain the transformations we see is only a motive of permeating, steady, insidious force, which is all the time making in a certain direction, though always liable to be rendered nugatory by a resisting force. Of precisely this character is the tendency to ease. It has been fitly compared to the attraction of gravitation, which constantly tends to level everything high, and draw all substances to the common centre: while, nevertheless, whatever occupies a favoring position, has stamina in itself, or is supported from beneath, keeps up; and while some things even rise, or are projected upward. The economic tendency threatens everything, and reduces whatever is not guarded—or rather, reduces most rapidly what is least guarded: for nothing in language is absolutely insured against its attacks. Every word which is established in use will answer its purpose practically just as well, even if it be not kept up to the full measure of expenditure of force with which it was launched into life, or which it has thus far maintained; and relaxation of the tension of effort at any point allows a weakening to slip in. There is no item of the elaborate structure of speech which cannot be dispensed with; for language is not so poor as to possess only one way of expressing a thing. In a given word it is, other things being equal, the accented syllable that resists best; among words, it is the fully significant ones, as compared with the more enclitic connectives; in an inflective system, it is those formative elements of which the value is most clearly apprehended by the speakers—and so on.

Of far higher importance is it, in the second place, to see clearly that the action of the economic tendency is not toward substituting for sounds in use other sounds which in themselves are easier of production: to no small extent, its effect is just the contrary of this. The problems of phonetics are not going to be helped to a solution by establishing a scale of harder and easier utterances. To draw up such a scale,

indeed, would be found a delicate and difficult task. In general, to a given speaker, all the sounds which he is accustomed to make are alike easy; all to which he is unused are hard, in varying degrees, depending mainly on their distance from what he already familiarly knows. If we are to make a scale, it can hardly be otherwise than by the method hinted at above—by observing what comes easiest to the unpracticed organs of young children. And we should find, on applying this test, that the sounds which were dominant in earliest Indo-European, and which phonetic development, through its whole course, has been turning into “lighter” and “weaker” forms, are those with which the untrained speaker at the present time naturally begins. We cannot find a syllable which the infant (etymologically *in-fans*) will sooner and more readily reproduce than *pa*: yet its *a* is the “strongest” of the vowels; and the class (surd mutes) to which its *p* belongs holds a like rank among the consonants. The sounds which the child leaves out or mutilates are apt to be the fricatives, the semi-vowels *y* and *w*, the intermediate shades of vowel utterance. To reverse King Herod’s famous deed, and cut off all speakers *except* those of “three years old and upward,” would go a good way also towards reversing the alphabetic growth of ages, and restoring an ancient system. So far as children’s imperfections of speech exert any influence on phonetic progress, they work against the prevailing current. But their influence is, in reality, only small. They are learners; imperfection is expected from them, and while it is excused, it is also not imitated: age brings practice; and, as adults, they have learned to speak as adults speak. What determines the history of growth of language is the convenience of its adult and practiced speakers.

And what governs the convenience of adults is—so prevalently that we may almost say exclusively—compatibility, ready combinability in the processes of rapid speaking: not facility of production in the condition of isolated utterance. The succession of different articulating positions, the constant transitions of the organs from one combination to another—these make a modifying influence of far higher importance

than the differences of intrinsic ease. Hence, apart from abbreviation, almost all phonetic history consists in adaptation; and this is mostly assimilation, although in special cases it may be dissimilation likewise; it may involve omission for the relief of a difficult combination, or, on the other hand, insertion of a transitional sound—and so on.

The phenomena ordinarily reckoned as assimilative are too familiar to be worth illustrating; but there are others, less generally recognized as belonging to the same class, to whose consideration a brief space may well be devoted.

We are wont to call our human speech “articulate,” and to regard the fact that it is so as its most fundamental and distinctive characteristic. And this with good reason; only there are few who can tell what they really mean by *articulate*; and even many most reputable authorities are unclear or mistaken in their apprehension of the term. Articulation does not at all signify production by certain definite successive positions and actions of the organs: all utterance, human or brute, is of that nature; musical utterance would admit the same definition. Articulation is in reality what its etymology makes it: the breaking up of the stream of utterance into distinct parts, into *articuli* or ‘joints’—which joints are the syllables: articulate and syllabic are essentially synonymous with each other. And the syllabic effect is produced by the constant alternation of closer and opener utterances; the closer, or consonants, serve as separators, and at the same time connectors, of the opener and fuller vocal tones, or vowels. The vowels are the main audible substance; but the aid of the consonants is required to give it articulate character: these divide it into individual parts, separate, but indefinitely combinable. Hence the transition from the close or consonantal positions to the vowel positions, and the contrary, is constant; and it is a fact of the very first consequence in the phonetic history of speech. For, in its performance, an obvious advantage is gained by making the transitional movement shorter, by reducing the vibrating distance of the organs: that is to say, by shutting less closely the organs which have immediately to open again, and by opening less

widely the organs which have immediately to close again. It is only when we give it this interpretation that we can accept as of any force or value the principle often laid down—that the utterances least remote from the medial or neutral position of ordinary breathing are easiest to make. That utterances of this class are easier in themselves, or in isolated use, is disproved by the testimony of young speakers, of early alphabets, and of the ruder existing alphabets. But when the power of swift and ready utterance is acquired, implying a degree of rapidity and accuracy of movement in the organs of speech which appears wonderful and almost incredible to one who looks at it closely enough to see what it is, then the amount of departure each way from the medial position becomes an element of importance. Then the medial sounds, though harder for the untrained speaker to catch and imitate, are found by the advanced and dexterous speaker a lightening of his task. No other reason than this, I believe, can be given why the *a*-sound (of *far*), which is the openest of the vowels, tends always to pass into the closer *i* and *u*, either directly or through the intermediate *e* and *o*; while, by an apparently contrary but really coincident tendency, the mutes are converted into fricatives: and so the medial classes of the alphabet are filled up. Sharpness of distinction and full resonance of tone thus give way to greater pliancy, smoothness, and ease. And the movement is evidently capable of being carried to the extreme of indistinctness and dimness; there is no necessary limit to the destructive action of the economic tendency; as it may strip a language once highly synthetic of nearly all its inflectional apparatus, so it may also reduce a clear and full phonetic structure to something approaching the mumbling murmur of one who is trying to speak faster than his organs will let him.

There is not in the phonetic history of our family of languages a movement of more constant action and wider reach than this. And its essentially assimilative character is obvious. It is a mutual assimilation of vowel and consonant: each great class exerts an influence to draw the other toward itself; the vowels are made somewhat closer or more conso-

nantal, while the consonants are made somewhat opener or more vowel-like. I have pointed out in another place (above, p. 57) that a similar assimilative character belongs also to the ordinary interchanges of surd and sonant; thus, and thus only, are they to be brought under the action of the economic tendency; they stand in no natural and inherent relation of comparative ease or difficulty.

In the third place, while we may expect considerable accordance among different languages in the wider and more general results of phonetic change, there is nothing in the law of economy which should necessitate a correspondence in details. The minor movements depend on peculiarities of habit which can neither be prescribed nor foreseen, because they involve as an element the freedom of human action. Such peculiarities may be initiated no one knows why or how —by accident, as we say: and, from wholly insignificant beginnings, they may grow, with the aid of circumstances and under the shaping influence of other habits, into something very definite and marked; and, in their turn, they may exert a shaping influence on other habits, and lead to consequences which shall seem quite out of proportion to their own importance. In learning how movements of this character go on, the minute study of living modes of utterance, especially in what we call their dialectic varieties, will doubtless be of essential assistance; it is perhaps the most important result for the study of language which is to be expected from the modern science of phonology. But neither this nor anything else will do more than enable us to follow with fuller appreciation the recorded facts of linguistic history. The varieties of linguistic growth will always be of the same character as other varieties of historical development: incorporations of the varieties of human character and capacity, working themselves out under direction of the varieties of circumstance; to be traced out with more or less thorough comprehension, but not to be determined *à priori*.

If the law of economy be properly understood, it will be found fairly liable to none of the objections brought against it, and possessed of nearly all the importance ever claimed in

its behalf. At present there appears to be no prospect that any other having the title of its importance will ever be put alongside it. We have, however, only to wait patiently to see what, in this respect, the future will bring forth, content with noting the absence thus far of any hostile or rival principle.

XI.—*Did Der Von Kürenberg Compose the Present Form of the Nibelungenlied?**

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In 1857 the late Moritz Haupt, then Professor in the university at Berlin, published under the title "*Des Minnesangs Frühling*," the edition of the early lyric poems of the Minnesänger which Lachmann had projected, and upon which he had expended, during the latter part of his life, a good deal of labor. The book appeared as the combined work of Lachmann and Haupt. In this volume there are fifteen strophes under the title "*Der von Kürenberg*," taken with their title from the manuscript of early German songs in the National Library at Paris. Thirteen of these strophes are in the metre of the *Nibelungenlied*, and there has been for some years a growing tendency among the *littérateurs* and scholars of Germany to impute the authorship of this poem, as we have it, to the von Kürenberg who is supposed to have written these strophes. Among those who have been leading champions of this opinion are Pfeiffer, Professor in the Vienna University, who died in 1868, and Bartsch, still Professor in Heidelberg. It was in 1862, in a session of the Imperial Academy at Vienna, that Franz Pfeiffer advanced his "scientific" proofs for this authorship of the poem, and

* This paper was prepared for the Society's meeting in 1876, but the writer was unable to attend the meeting.